CLAIMS

1. A starting device for a single phase induction motor comprising: a stator (B) having a running coil (B1) and a starting coil (B2); a power source (F) which supplies current to said running coil (B1) and said starting coil (B2); a running switch (S1) and a starting switch (S2), respectively connecting the running coil (B1) and the starting coil (B2) to the power source (F) when in a closed condition, said starting switch (S2) being conducted to an open condition upon completion of the motor start; a current sensor (RS) connected in series between the power source (F) and the stator (B), in order to detect the current level supplied to the latter; and a control unit (11) supplied by the power source (F) and receiving, from the current sensor (RS), signals representative of the current level being supplied to the stator (B), characterized in that said control unit (11) is operatively connected to the running switch (S1) and to the starting switch (S2), in order to instruct the open and closed conditions thereof, the open condition of the starting switch (S2) being defined when the ratio (K) between the present current level (Ia) supplied to the stator (B) and informed by the current sensor (RS) to the control unit (11) and the starting current level (Ip) previously informed to said control unit (11) by the current sensor (RS) upon the closing of the starting and the running switches (S1 and S2), reaches a value that is equal or inferior to a predetermined value (Km).

2. A starting device, according to claim 1 and comprising a voltage sensor (SV) connected to the power system, in order to detect the voltage level in the power system, and with the control unit (11) receiving, from the voltage sensor (SV), signals

representative of the voltage level in the power system, characterized in that the value (Km) is equal to the product of a reference value (Kr) multiplied by the ratio between the voltage read in the starting moment (Vp) and the present voltage (Va) detected by the control unit (11)

3. A starting device, according to claim 2, characterized in that the reference value (Kr) corresponds to the ratio between the running current level (Im) drawn by the stator (B) in a motor running condition and the starting current level (Ip), in at least one of the expected load conditions characteristic of the motor and of the power system voltage.

4. A starting device, according to claim 3, characterized in that the control unit (11) instructs the opening of the running switch (S1) and of the starting switch (S2) when the ratio (K) between a present current level (Ia) drawn by the stator (B) and the starting current level (Ip) is superior to the value (Km) after a maximum time interval previously defined for ending the motor start has elapsed.

5. A starting device, according to claim 1, characterized in that the current sensor (RS) is disposed in series between the power source (F) and the running switch (S1).

6. A starting device, according to claim 1, characterized in that the current sensor (RS) is disposed in series between the power source (F) and the running and starting switches (S1 and S2).

7. A starting device, according to claim 1, characterized in that it includes a running capacitor (CR) disposed parallel to the running and starting switches (S1 and S2) and a starting capacitor (CS) disposed in series with the starting coil (B2).

8. A starting method for a single phase induction motor of the type comprising a stator (B) with a running coil (B1) and a starting coil (B2) for operating jointly with an AC power source (F) which supplies current to said running coil (B1) and said starting coil (B2); a running switch (S1) and a starting switch (S2), respectively connecting the running coil (B1) and the starting coil (B2) to the power source (F) when in a closed condition, said starting switch (S2) being conducted to an open condition upon completion of the motor start, characterized in that it comprises the steps of:

a- detecting the starting current level (Ip) supplied to the stator (B) during a first time interval, after the closing of the starting and the running switches (S1 and S2) by a current sensor (RS) connected in series between the power source (F) and the stator (B), and informing said starting current level (Ip) to a control unit (11) supplied by the power source (F) and connected to the current sensor (RS) in order to receive, from the latter, information about the current being supplied to the stator (B);

b- detecting a present current level (Ia) drawn by the stator (B) during a second time interval (t2) subsequent to the first time interval (t1) after the closing of the starting and running switches (S1 and S2), and informing said present current level (Ia) to the control unit (11);

c- comparing the present current level (Ia) drawn by the stator (B) with that value of the starting current level (Ip); and

d- opening the starting switch (S2) when the ratio between the present current level (Ia) drawn by the stator (B) and the starting current level (Ip) reaches a value that is equal or inferior to a predetermined

value (Km).

9. A starting method, according to claim 8, characterized in that it comprises the additional steps of:

- detecting the voltage level in the power system in a first time interval (t1), after the closing of the starting and running switches (S1 and S2), by a voltage sensor (SV) connected to the power system, and informing said starting voltage level (Vp) to a control unit (11) supplied by the power source (F) and connected to the voltage sensor (SV) in order to receive, from the latter, information about the power system voltage;
- detecting a present voltage level (Va) of the power system during a second time interval (t2) subsequent to the first time interval (t1) after the closing of the starting and running switches (S1 and S2), and informing said present voltage level (Va) to the control unit (11);
- comparing the present voltage level (Va) with that value of the starting voltage level (Vp);
- calculating a value (Km) as being equal to the product of a predefined reference value (Kr) multiplied by the ratio between the voltage read at the start moment, (Vp), and the present voltage (Va) detected by the control unit; and
- opening the starting switch (S2) when the ratio (K) between the present current level (Ia) drawn by the stator (B) and the starting current level (Ip) is greater than a value (Km) after a maximum time interval previously defined for motor start completion has elapsed.

10. A starting method, according to claim 8, characterized in that, in step "b", the present current level (Ia) drawn by the stator (B) is the one

which supplies the running coil (B1) of the stator (B).

11. A starting method, according to claim 8, characterized in that, in step "b", the present current level (Ia) drawn by the stator (B) is the one which supplies current to the running coil (B1) and the starting coil (B2) of the stator (B).